

10th Webinar on Banking, Finance and Investments Online 04 July 2025

IFRS 9 Modelling:

Introduction to Expected Credit Loss and
Identifying Opportunities for Actuaries



Speakers:

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Speaker Introduction



**Vighnesh
Mehta**



Banking Actuarial Exams from ASSA and IFOA



Treasury & Investments | Risk Management |
Credit Risk | Balance sheet management



Banking | Group CRO - Motilal Oswal



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**Mrigank
Agarwal**



Banking Actuarial Exams from ASSA and IFOA



Credit risk | Origination strategy | VIR | Climate risk



Life and Health Reinsurance → Banking



London | Mumbai | Kolkata



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Agenda



- 1) Why IFRS 9? -> Move from IAS 39/ Indian GAAP to IFRS 9/ IAS 109
- 2) Introduction to IFRS 9 and its components
- 3) Common methodology of ECL component calculation
- 4) Key challenges and Indian context
- 5) Opportunities for Actuaries

Why IFRS 9 ?

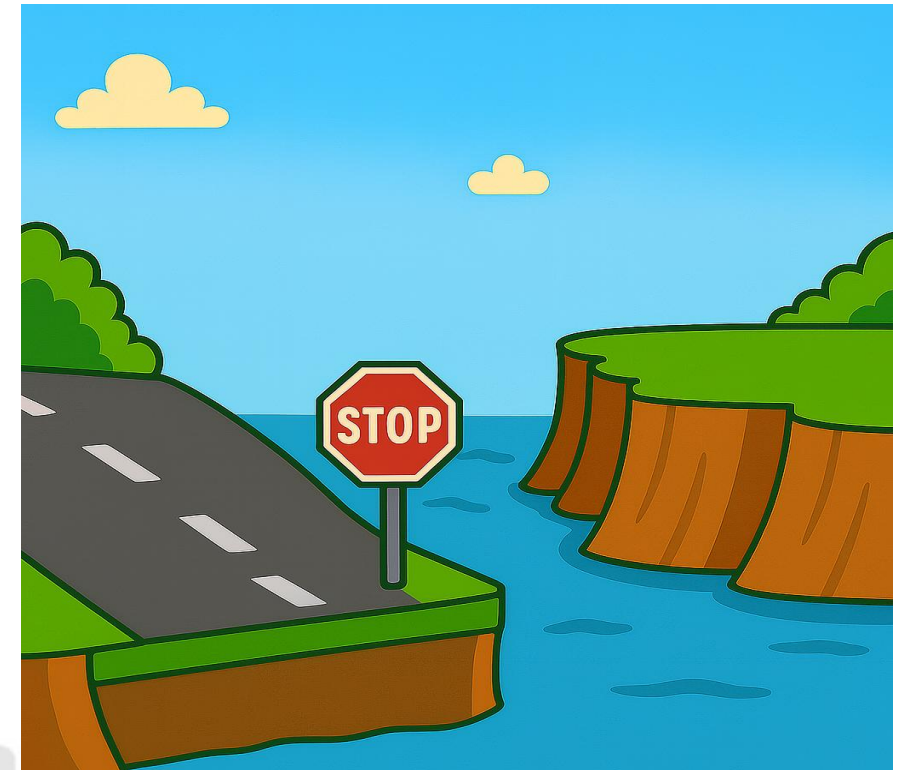
Why IFRS 9?

Can you tell me which is a better placement for the “STOP” sign?

OPTION A - After the end of a broken road



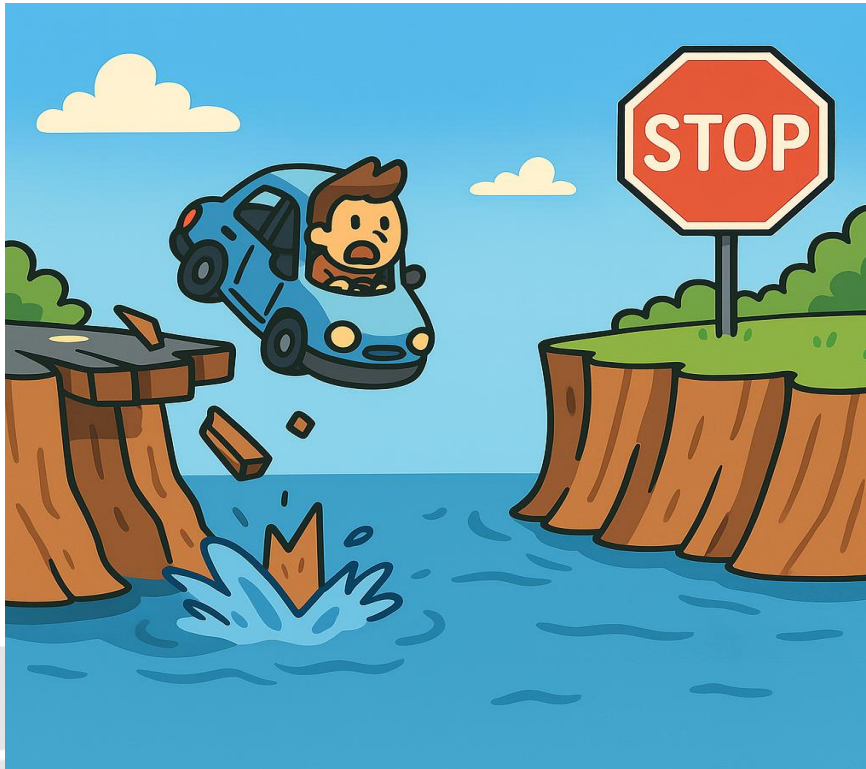
OPTION B - Before the start of a broken road



Why IFRS 9?

IFRS 9 enhances early warning mechanisms by identifying potential credit risks before a financial collapse occurs.

OPTION A - IAS 39



OPTION B - IFRS 9

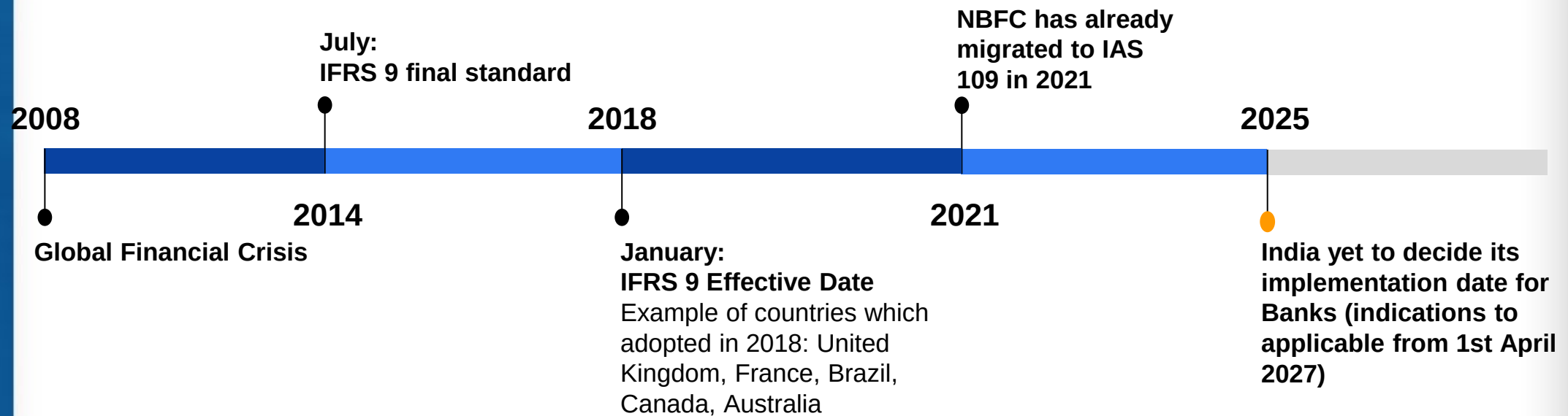


IAS 39 vs IFRS 9

Feature	IAS 39	IFRS 9
Impairment Model	Incurred	Expected
Recognition Trigger	Loss recognized only when evidence of impairment exists	Provisions held for all loans
Staging	Not present	3-stage model
Treatment of Off Balance Sheet	Limited	Explicitly included such as guarantees, loan commitments
Macroeconomics	Ignored	Included

IFRS 9 Timeline

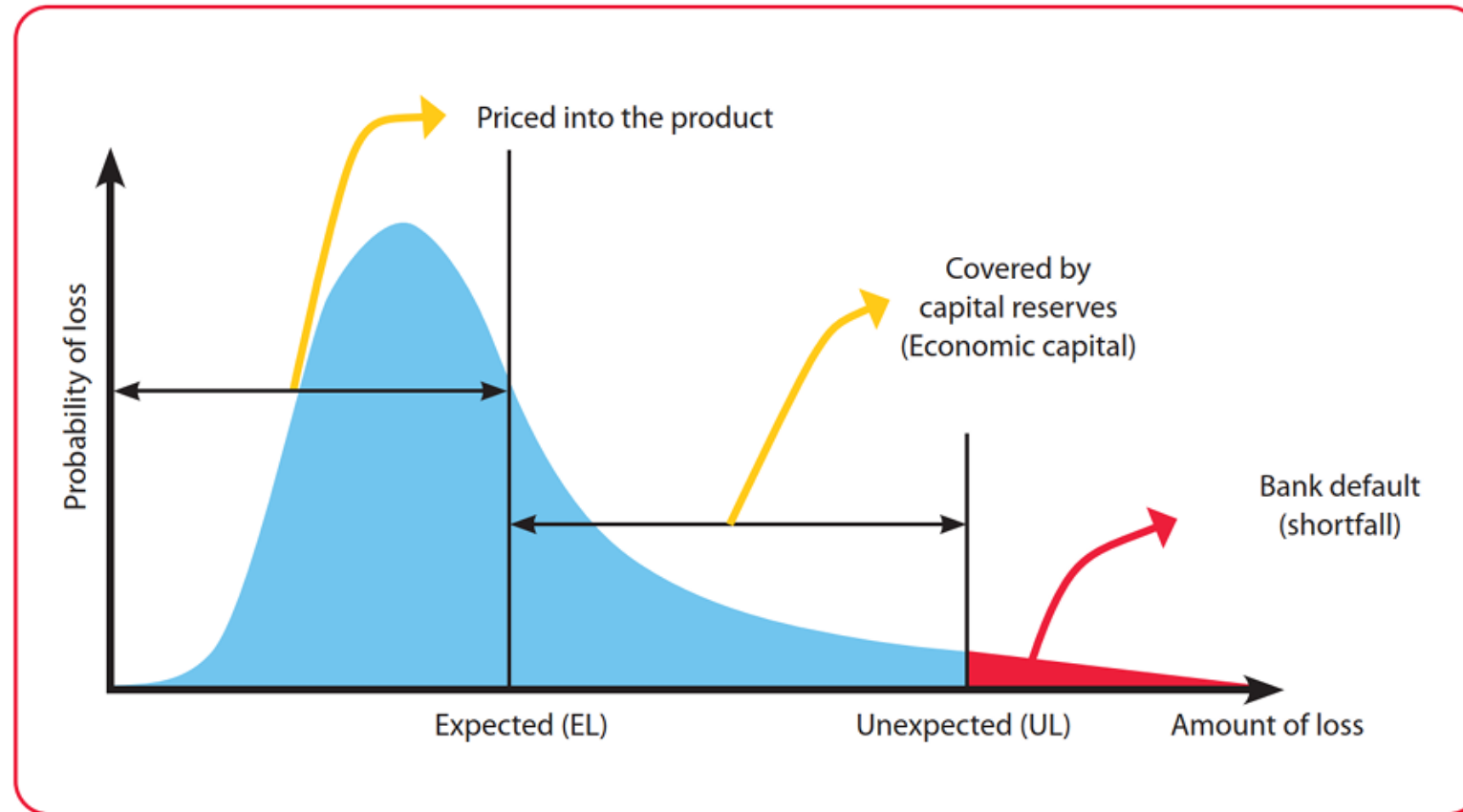
Key dates for Global IFRS 9 adoption



Introduction to IFRS 9 ECL and its components

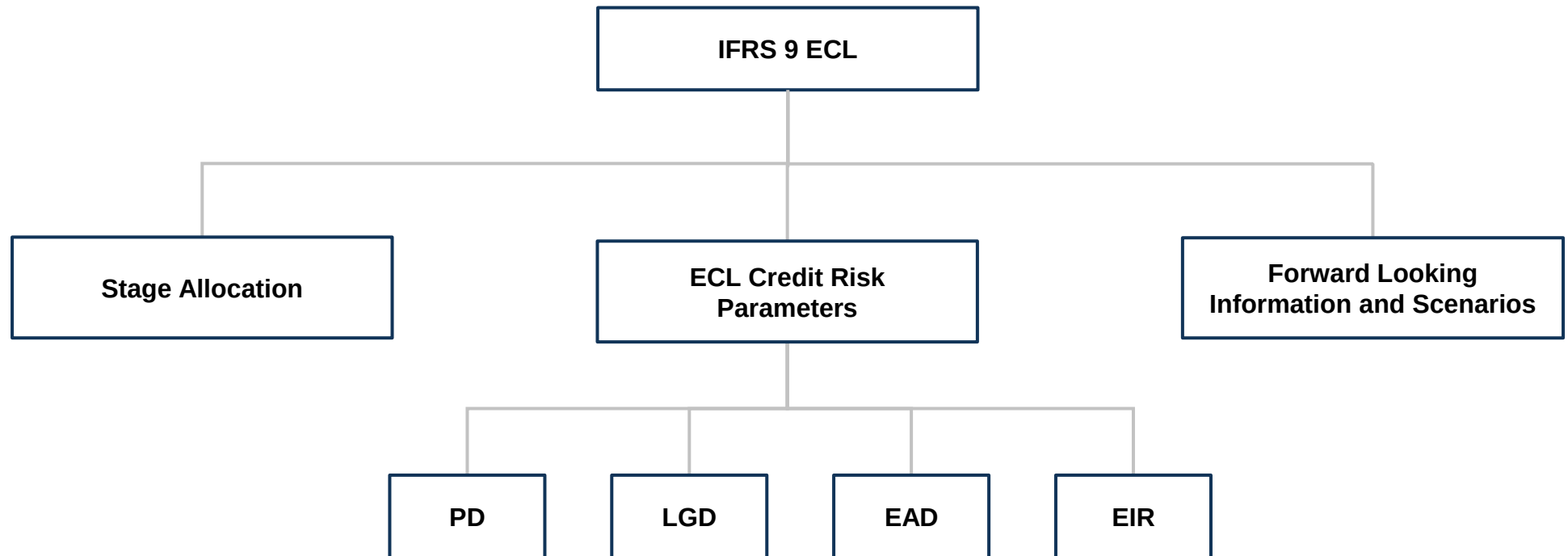
Unexpected vs Expected Loss

The objective of today's session is to look at Expected Loss



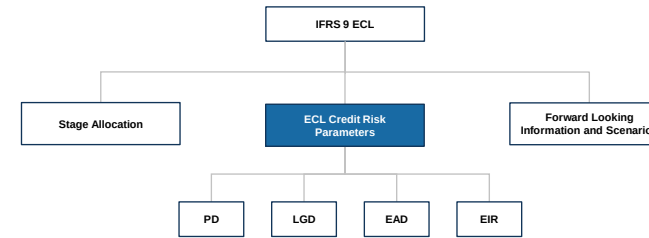
IFRS 9 ECL - Overview

Key components for today's discussion



IFRS 9 ECL -

ECL Credit risk parameters



$$ECL = \sum_{i=1}^n PD_i \cdot LGD_i \cdot EAD_i \cdot D_i$$

ECL = Expected credit loss

n = Time bucket till maturity

I = Time bucket

PD = Probability of Default

LGD = Loss Given Default

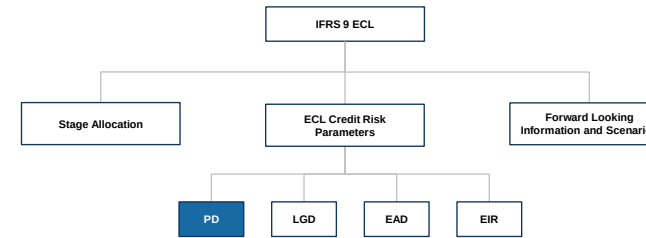
EAD = Exposure at Default

D = Discounting factor

Similar to Reserves in Insurance

IFRS 9 ECL -

ECL Credit risk parameters



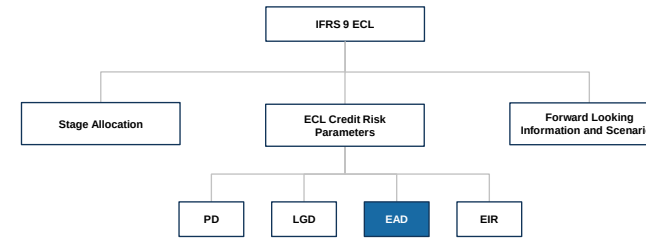
$$ECL = \sum_{i=1}^n PD_i \cdot LGD_i \cdot EAD_i \cdot D_i$$

Probability of Default

- Similar to Mortality Rate in Life insurance / Frequency in Non-Life
- Impacted by Factors such as
 - Borrower Characteristics
 - Loan Characteristics
 - Economic Conditions

IFRS 9 ECL -

ECL Credit risk parameters



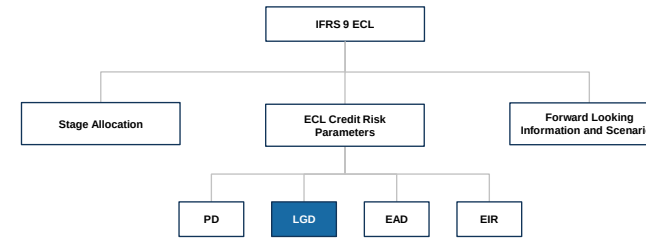
$$ECL = \sum_{i=1}^n PD_i \cdot LGD_i \cdot EAD_i \cdot D_i$$

Exposure at Default

- Amortization profile
- Current Balance
- Interest rate
- Agreed Limits
- Options of undrawn balance

IFRS 9 ECL -

ECL Credit risk parameters



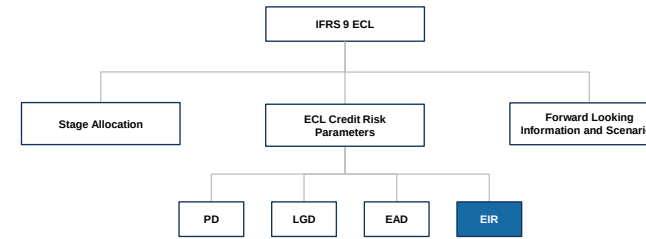
$$ECL = \sum_{i=1}^n PD_i \cdot LGD_i \cdot EAD_i \cdot D_i$$

Loss Given Default

- Similar to severity in Non-Life
- Impacted by Factors such as
 - Collateral value vs Loan amount
 - Collateral type
 - Sales Cost and force sale haircuts
 - Economic conditions
 - Time to recovery

IFRS 9 ECL -

ECL Credit risk parameters



$$ECL = \sum_{i=1}^n PD_i \cdot LGD_i \cdot EAD_i \cdot D_i$$

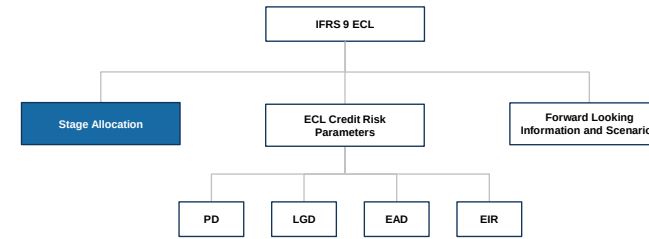
Discounting Factor = $(1/EIR)^{-n}$

Effective Interest Rate (EIR) is the rate that exactly discounts the estimated future cash payments or receipts through the expected lifetime

- Contractual interest rate
- Fees and transaction costs
- Prepayment or restructuring

IFRS 9 ECL -

Stage Allocation



Stage 1

Performing asset

12-month expected loss

$$ECL = \sum_{i=1}^n PD_i \cdot LGD_i \cdot EAD_i \cdot D_i$$

where $n = \min(12, \text{time of maturity})$



Stage 2

Credit quality deterioration

Lifetime expected loss

$$ECL = \sum_{i=1}^n PD_i \cdot LGD_i \cdot EAD_i \cdot D_i$$

where $n = \text{time to maturity}$



Stage 3

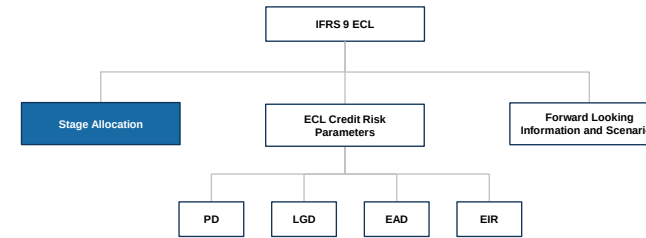
Credit-impaired asset

$$ECL = 1 \times LGD \times EAD$$

$PD = 1$ as account already in default

IFRS 9 ECL -

Stage Allocation



Stage 1
Performing asset
12-month expected loss



SICR



Stage 2
Credit quality deterioration
Lifetime expected loss

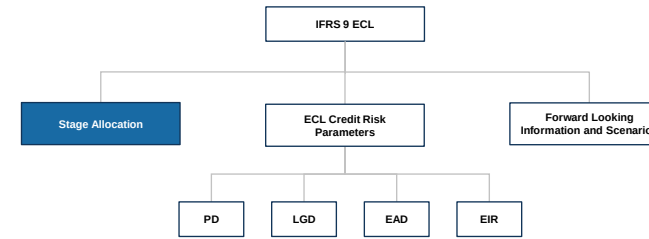
QUALITATIVE FACTORS

- Missed or delayed payments (not yet 30 days past due)
- Internal/External credit rating downgrade
- Borrower placed on watchlist or special monitoring
- Forbearance or restructuring granted
- Borrower expresses financial difficulty or liquidity concerns
- Adverse changes in economic or business environment
- Borrower's sector or geography under financial stress
- Significant deterioration in collateral value or guarantee quality
- Significant changes in borrower's operations or legal structure
- Involvement in legal or regulatory proceedings

QUANTITATIVE FACTORS

- Absolute movement in PD since origination
- Relative movement in PD since origination

Common Reasons for IFRS 9 Default (Stage 3):



90+ days past due on payments

Borrower declared in default by the bank

Loan restructuring due to financial difficulties

Borrower files for bankruptcy or insolvency

Foreclosure or repossession process initiated

Breach of covenant indicating severe credit issues

Fraud or misrepresentation discovered

Legal judgment against the borrower for non-payment

Exposure classified as uncollectible by the bank

Default of other loan

Illustrative case study: Credit risk modelling (IFRS 9)

“Under IFRS 9, banks are required to estimate expected credit losses for assets on each reporting date by using a forward-looking approach which will result in more timely recognition of credit losses” – Basel Committee on Banking Supervision

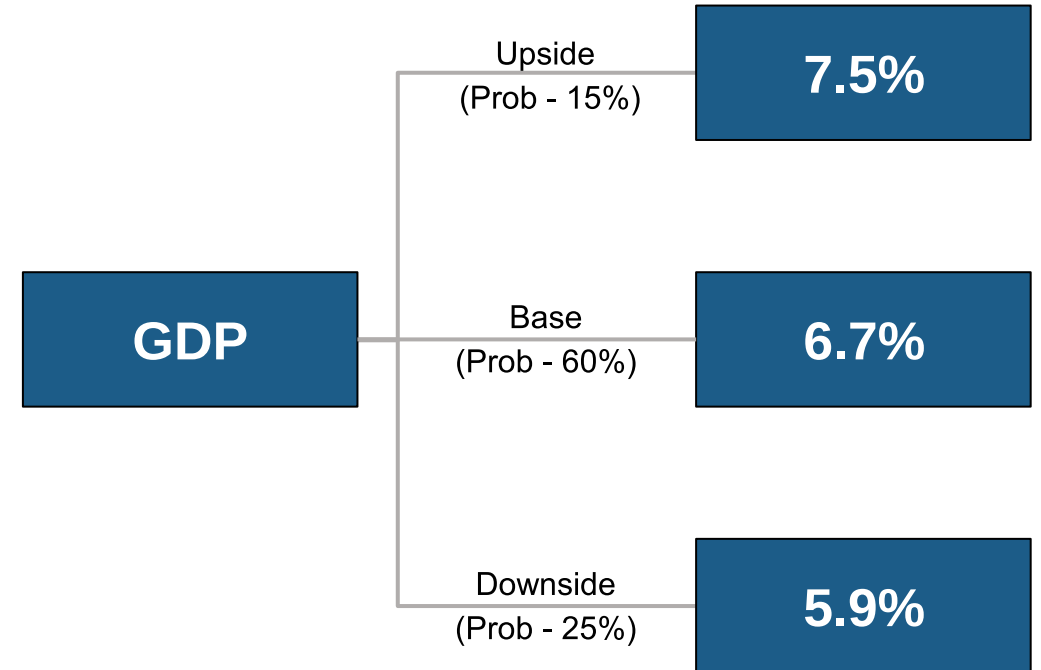
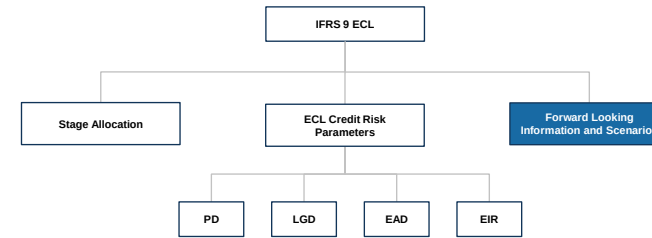
XYZ Bank's ECL for a sample loan as on 31st December 2024 (GBP)

Time (years)	31-Dec-25	31-Dec-26	31-Dec-27	31-Dec-28
Outstanding Principal	1,17,00,000	81,00,000	45,00,000	9,00,000
Interest Cashflow	5,02,938	3,22,208	1,42,479	7,562
Effective interest rate	5%	5%	5%	5%
EAD	1,22,02,938	84,22,208	46,42,479	9,07,562
LGD	45%	45%	45%	45%
PD	1.10%	1.10%	1.10%	1.10%
Expected loss per period	60,405	41,690	22,980	4,492
Residual Maturity (Years)	1	2	3	4
Expected loss per period (discounted at EIR)	57,528	37,814	19,851	3,696
12M expected loss (Stage 1)	57,528			
Lifetime expected loss (Stage 2)	1,18,889			

IFRS 9 ECL -

Forward Looking Approach

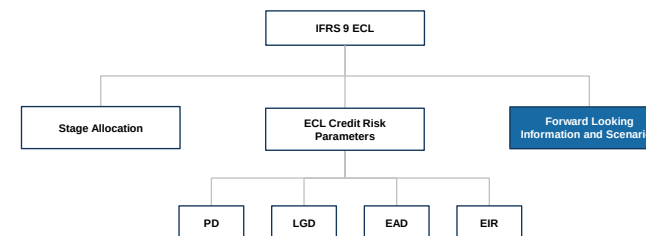
- Key feature of IFRS 9 is that it is a forward looking approach
- With forward looking approach there is a factor of uncertainty as future is not certain



These numbers are for representation purpose only

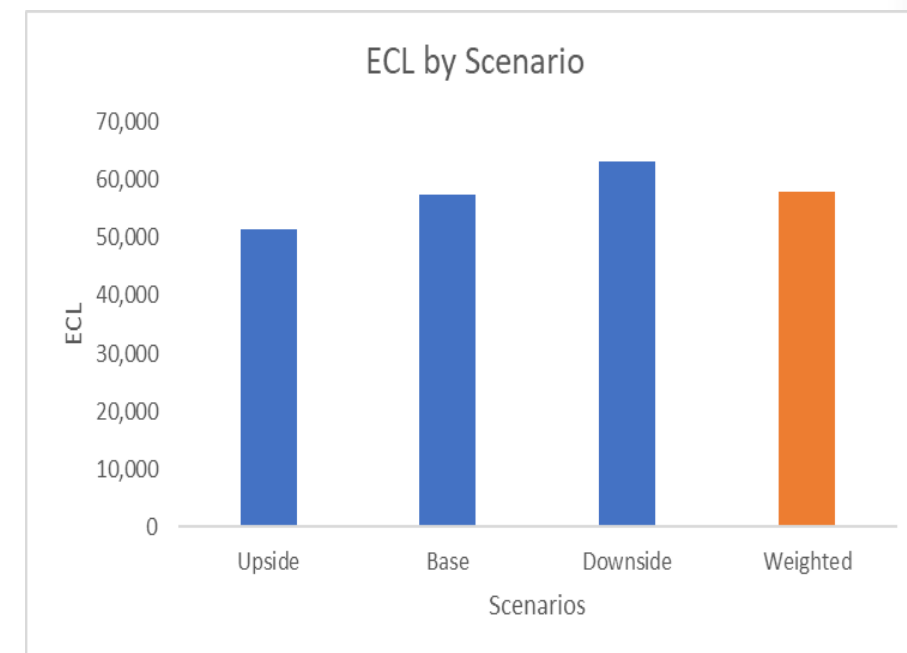
IFRS 9 ECL -

Forward Looking Approach



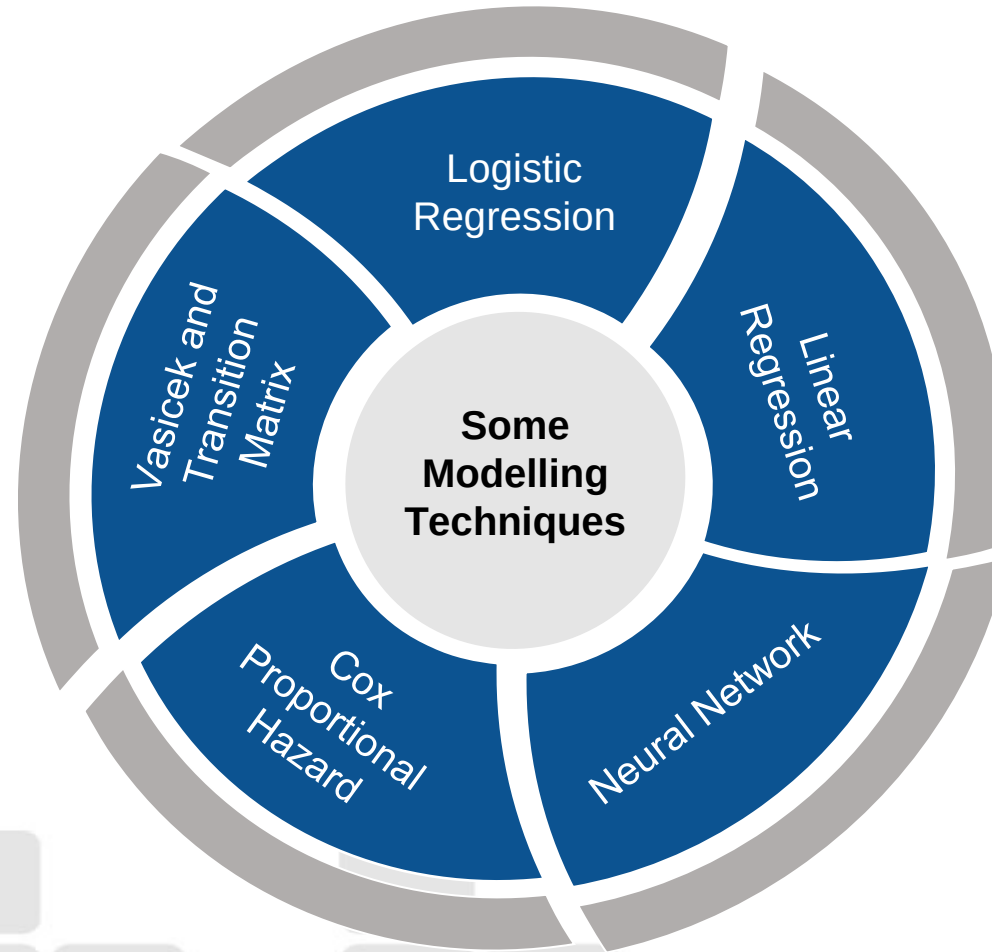
XYZ Bank's ECL for a sample loan as on 31st December 2024 (GBP)

Time (years)	<i>Upside Scenario</i>	<i>Base Scenario</i>	<i>Downside Scenario</i>
Expected Credit Loss	51,359	57,459	63,211
Probability	15%	60%	25%
Final ECL	57,982		



Common methodology of ECL component calculation

PD Methodology (1/2)



PD Methodology (2/2)

a) Logistic regression

$$\log \left(\frac{P}{1-P} \right) = \beta_0 + \beta_1 \times \text{GDP}_{\text{lagged 2 quarters}} + \beta_2 \times \text{CPI} + \beta_3 \times \text{Credit Score}$$

b) Transition Matrix + Vasicek

From \ To	A	B	C	D	E (Default)
A	85%	12%	2%	0.5%	0.5%
B	5%	80%	10%	3%	2%
C	1%	6%	75%	12%	6%
D	0%	1%	8%	70%	21%
E	0%	0%	0%	0%	100%

Key Formula (Simplified Vasicek Adjustment):

$$PD_{i,t}^{PIT} = \Phi \left(\frac{\Phi^{-1}(PD_i^{TTC}) - \sqrt{\rho} \cdot M_t}{\sqrt{1-\rho}} \right)$$

These numbers are for representation purpose only

LGD Methodology

- a) Regression
- b) Chain Ladder Method
- c) Regulatory Benchmarks / Industry Benchmarks

Loan Type	LGD Benchmark (Industry)
Corporate Secured	25%–45%
Corporate Unsecured	45%–60%
Credit Cards	70%–90%
Mortgages (prime)	10%–30%
Mortgages (subprime)	30%–60%

These numbers are for representation purpose only

EAD Methodology

$$\text{EAD} = \text{Outstanding Exposure} + (\text{Undrawn Commitment} \times \text{CCF})$$

$$\text{CCF} = \frac{\text{Drawn Amount at Default} - \text{Outstanding at Observation}}{\text{Undrawn Commitment at Observation}}$$

Common modelling techniques

- Average over multiple defaults
- Statistical technique such as regression
- Regulatory or Industry Standard CCF

Key challenges and Indian context

Challenges while implementing IFRS 9

Data & Modeling Challenges

- Lack of high-quality historical credit data
- Incomplete or insufficient loan-level data granularity
- Difficulty in modeling
- Limited internal capability for forward-looking forecasting
- Shortage of skilled professionals

Financial & Capital Impact

- Higher and more volatile credit loss provisions impacting capital adequacy
- Potential reduction in net profits due to early loss recognition
- Repricing pressure for riskier loan segments (e.g., MSME, retail)

Operational & System Challenges

- Need for significant IT system upgrades and integration between loan systems
- Increased internal control and complexity
- High implementation costs, especially for public sector banks
- Coordination challenges across departments (risk, finance, IT, credit)

Disclosure & Stakeholder Management

- Extensive qualitative and quantitative disclosure
- Increased scrutiny from auditors, regulators, and rating agencies

Opportunities for Actuaries

Key areas to get involved in

**Model
Development**

Model Validation

**Scenario
Generation**

Capital
Modelling

**Model
Monitoring**

Post Model
Overlay

IFRS 9 Audits