IFRS-9 EXPECTED LOSS PROVISIONING
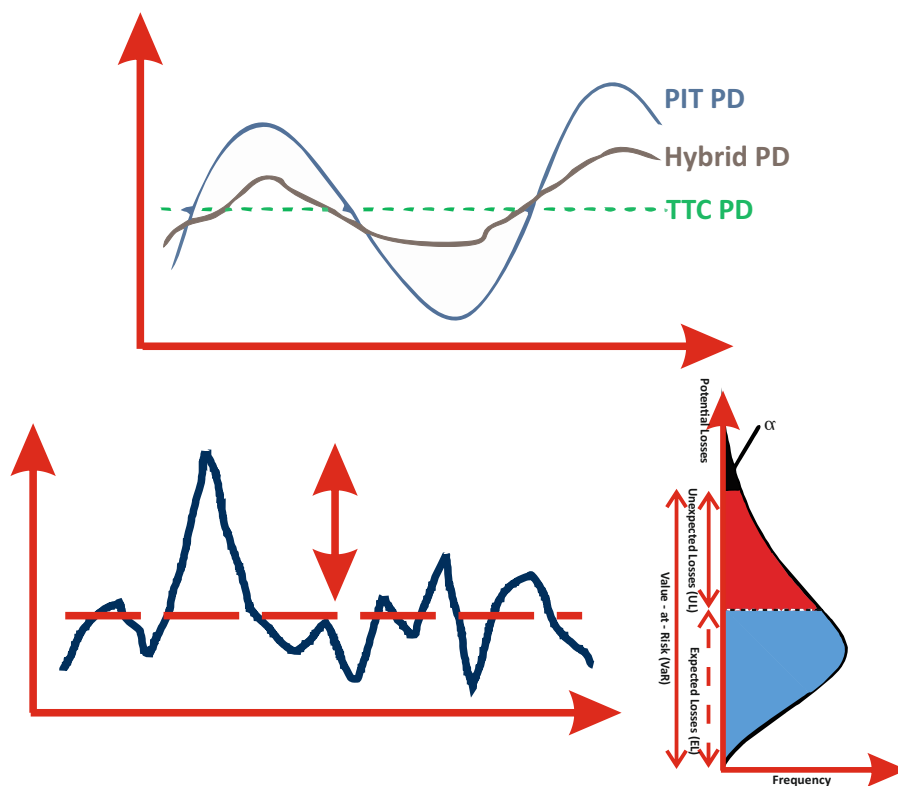## using Excel

35+ hours

Case Study and Project- driven Methodology

Blended Learning Methodology

PEAKS2TAILS

DETAILED CURRICULUM

ONE YEAR PD

- Generalised Linear Models
- Machine Learning (ML) Modelling
- Low Default Portfolio , Market- Based , Scarce Data Modelling

LIFE TIME PD

- Lifetime GLM Framework
- Survival Modelling
- Lifetime Machine Learning (ML) Modelling
- Transition Matrix Modelling

LGD MODELLING

- LGD Micro structure approach
- Probability of Cure
- LGD Regression Methods - Tobit Regression & Beta Regression
- LGD Machine Learning (ML) Modelling
- LGD Survival Analysis

EAD MODELLING

- Full Prepayment Modelling via GLM
- Multinomial Regression Competing Risks Modelling
- CCF Modelling

PROJECT

- FULL INDUSTRY LEVEL PROJECT 1 - Dataset containing Corporate Loans, Retail LAP , Retail LAS , Corporate LAS
- FULL INDUSTRY LEVEL PROJECT 2 - Corporate Loans Data

BACKGROUND | OBJECTIVE | ATTENDEES | PEDADOGY

BACKGROUND

Events of the global crisis in 2007-08 led to the criticism of "Too Little Too Late" for the accounting recognition of impairment losses on financial instruments under the IAS 39 . In response, IFRS suggests a forward - looking approach for identification of credit impairment and the estimation of expected credit loss that will provide a timely and adequate accounting treatment of loss provisions . This makes it imperative for banks to become familiar with the concepts underlying credit impairment the understand in - depth the ECL models.

OBJECTIVE

Familiarizing the participants with the conceptual foundations, data and system requirments and the underlying the mathematical models pertaining to the calculation of expected loss for provision and minimum regulatory capital requirments for credit risk under the IFRS9 and Basel IRB approach . Learn all predictive modelling techniques available to model the component of Expected Loss - Probability of Default , & Exposure at Default.

WHO CAN ATTEND

The programme is intended for executives working in departments of Finance and Account, Risk management and Audit of Banks. Students pursuing CA/CFA/FRM interested to work in consulting firm or banks in IFRS9 are also invited to attend this course .
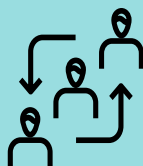
PEDADOGY

An intuitive non-quantitative approach will be employed throughout so that participants develop a feel for risk/reward tradeoffs without relying on complex mathematical formulas. Having said that , participants are encouraged to have laptops with Excel for a chance to manipulate simple but illustrative calculations.

www.peaks2tails.com

DEMO MODELS

DURING THE PROGRAM YOU WILL LEARN TO CREATE EXCEL MODELS LIKE SHOWN BELOW

| W.Average Transition (13-14-15-16-17) | | | | | | | | | | | |
Rating Grade		2	3	4	5	6	7	8	9	Exit	Default Rates	
Investment Grades	2	81.37%	5.88%	7.84%	0.00%	0.00%	0.00%	0.00%	0.00%	4.90%	0.03%	TRUE
	3	2.97%	55.49%	11.71%	6.25%	0.38%	0.00%	1.02%	0.00%	22.18%	1.02%	TRUE
	4	0.24%	8.88%	54.02%	18.32%	0.98%	0.12%	2.83%	0.00%	14.61%	2.83%	TRUE
	5	0.04%	1.72%	9.77%	58.83%	3.66%	0.33%	4.92%	0.00%	20.72%	4.92%	TRUE
Marginal & Watch	6	0.28%	4.76%	0.56%	9.80%	39.22%	0.00%	11.76%	0.00%	33.61%	11.76%	TRUE
	7	0.00%	0.00%	0.00%	1.65%	0.00%	71.07%	14.88%	0.00%	12.40%	14.88%	TRUE
Default Grades	8	0.00%	0.00%	0.00%	0.00%	1.41%	0.00%	92.96%	0.00%	5.63%	100.00%	TRUE
	9	0.00%	0.00%	0.00%	0.00%	0.97%	0.00%	97.09%	0.00%	1.94%	100.00%	TRUE

Investment Grades | Marginal & Watch | Default Grades

Rating Grade	Actual PD%	Calibrated PD	Final Curve
2	0.03%	0.12%	0.12%
3	1.02%	0.37%	1.02%
4	2.83%	1.12%	2.83%
5	4.92%	3.42%	4.92%
6	11.76%	10.39%	11.76%
7	14.88%	31.58%	31.58%

Calibrated PD

$y = 0.0004e^{1.1119x}$
$R^2 = 0.8264$

Beta Regression

Since a beta distribution applies on a random variable in the interval (0-1) , it becomes a natural candidate for LGD
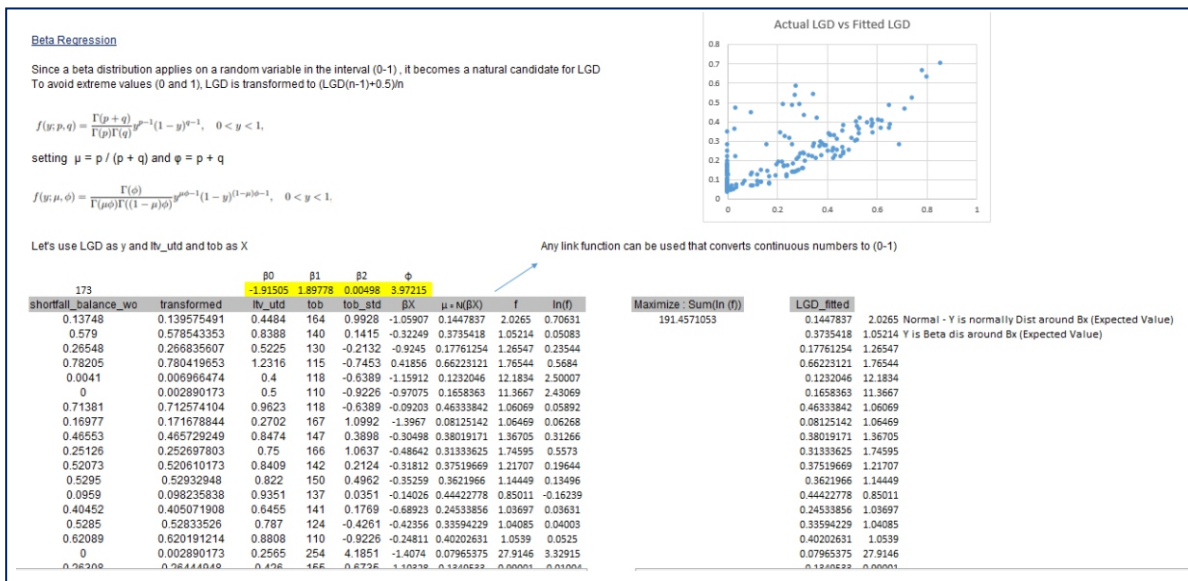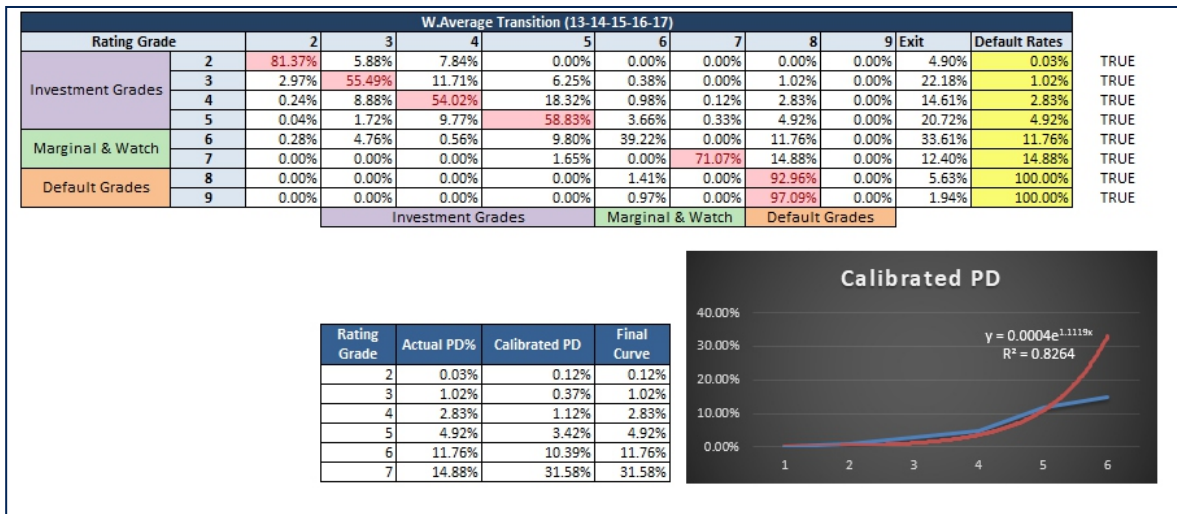To avoid extreme values (0 and 1), LGD is transformed to (LGD(n-1)+0.5)/n

$$f(y; p, q) = \frac{\Gamma(p+q)}{\Gamma(p)\Gamma(q)} y^{p-1}(1-y)^{q-1}, \quad 0 < y < 1,$$

setting $\mu = p/(p+q)$ and $\varphi = p + q$

$$f(y; \mu, \phi) = \frac{\Gamma(\phi)}{\Gamma(\mu\phi)\Gamma((1-\mu)\phi)} y^{\mu\phi-1}(1-y)^{(1-\mu)\phi-1}, \quad 0 < y < 1.$$

Let's use LGD as y and ltv_utd and tob as X

Actual LGD vs Fitted LGD

Any link function can be used that converts continuous numbers to (0-1)

| | | β0 | β1 | β2 | φ | | | | | | |
| 173 | | -1.91505 | 1.89778 | 0.00498 | 3.97215 | | | | | | |
shortfall_balance_wo	transformed	ltv_utd	tob	tob_std	βX	μ = N(βX)	f	ln(f)	Maximize : Sum(ln (f))		LGD_fitted
0.13748	0.139575491	0.4484	164	0.9928	-1.05907	0.1447837	2.0265	0.70631	191.4571053		0.1447837	2.0265 Normal - Y is normally Dist around Bx (Expected Value)
0.579	0.578543353	0.8388	140	0.1415	-0.32249	0.3735418	1.05214	0.05083		0.3735418	1.05214 Y is Beta dis around Bx (Expected Value)
0.26548	0.266835607	0.5225	130	-0.2132	-0.9245	0.17761254	1.26547	0.23544		0.17761254	1.26547
0.78205	0.780419653	1.2316	115	-0.7453	0.41856	0.66223121	1.76544	0.5684		0.66223121	1.76544
0.0041	0.006966474	0.4	118	-0.6389	-1.15912	0.1232046	12.1834	2.50007		0.1232046	12.1834
0	0.002890173	0.5	110	-0.9226	-0.97075	0.1658363	11.3667	2.43069		0.1658363	11.3667
0.71381	0.712574104	0.9623	118	-0.6389	-0.09203	0.46333842	1.06069	0.05892		0.46333842	1.06069
0.16977	0.171678844	0.2702	167	1.0992	-1.3967	0.08125142	1.06469	0.06268		0.08125142	1.06469
0.46553	0.465729249	0.8474	147	0.3898	-0.30498	0.38019171	1.36705	0.31266		0.38019171	1.36705
0.25126	0.252697803	0.75	166	1.0637	-0.48642	0.31333625	1.74595	0.5573		0.31333625	1.74595
0.52073	0.520610173	0.8409	142	0.2124	-0.31812	0.37519669	1.21707	0.19644		0.37519669	1.21707
0.5295	0.52932948	0.822	150	0.4962	-0.35259	0.3621966	1.14449	0.13496		0.3621966	1.14449
0.0959	0.098235838	0.9351	137	0.0351	-0.14026	0.44422778	0.85011	-0.16239		0.44422778	0.85011
0.40452	0.405071908	0.6455	141	0.1769	-0.68923	0.24533856	1.03697	0.03631		0.24533856	1.03697
0.5285	0.528333526	0.787	124	-0.4261	-0.42356	0.33594229	1.04085	0.04003		0.33594229	1.04085
0.62089	0.620191214	0.8808	110	-0.9226	-0.24811	0.40202631	1.0539	0.0525		0.40202631	1.0539
0	0.002890173	0.2565	254	4.1851	-1.4074	0.07965375	27.9146	3.32915		0.07965375	27.9146
0.26209	0.26444049	0.426	155	0.6735	1.10238	0.1340533	0.00001	0.01004		0.1340533	0.00001

FREQUENTLY ASKED QUESTIONS

PREREQUISITE

Knowledge of Basic Excel , Basic Statistics , Credit Risk Terminology is must.

CERTIFICATE

Silver Certificate on successful completion of projects .
Gold Certification on passing a 2 hours MCQ based exam.

FEES

Rs.15000

DURATION

35+ hours

ABOUT THE TRAINER

Karan Aggarwal is one of India's leading trainers in Financial Modelling, Risk Modelling, Data Analytics and academic programs like Financial Risk Manager (FRM) & Actuarial Science. He has spearheaded several solution accelerators and spreadsheet-based prototypes in Risk and Analytics space. Karan has also authored a number of books on Advanced Excel, Statistical Modelling, Risk Modelling & Machine Learning. He is widely regarded for his problem-solving, thought leadership and intrapreneurship skills. His analytical mindset, solid fundamentals & the thirst to keep learning set him apart as a true authority in this field. Karan has also been awarded the Young Indian Entrepreneur Award by the Confederation Of Indian Industries in the year 2017.

OUR TRAINEES WORK IN

OUR SERVICES

1

2

3

4

Artificial Intelligence and Machine Learning

Risk Management

Academics

Finance

TRAINING

SOLUTIONING

CONSULTING

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