

Risks

→ Credit Risk

Repayment X
Credit Asset
Credit Rating Downgrade

→ Market Risk (Investments)

→ Liquidity risk

→ Reputational

Operational Risk

→ Data & Cyber sec. risk
+ Systems

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Risks in Banking

Atul Kedia

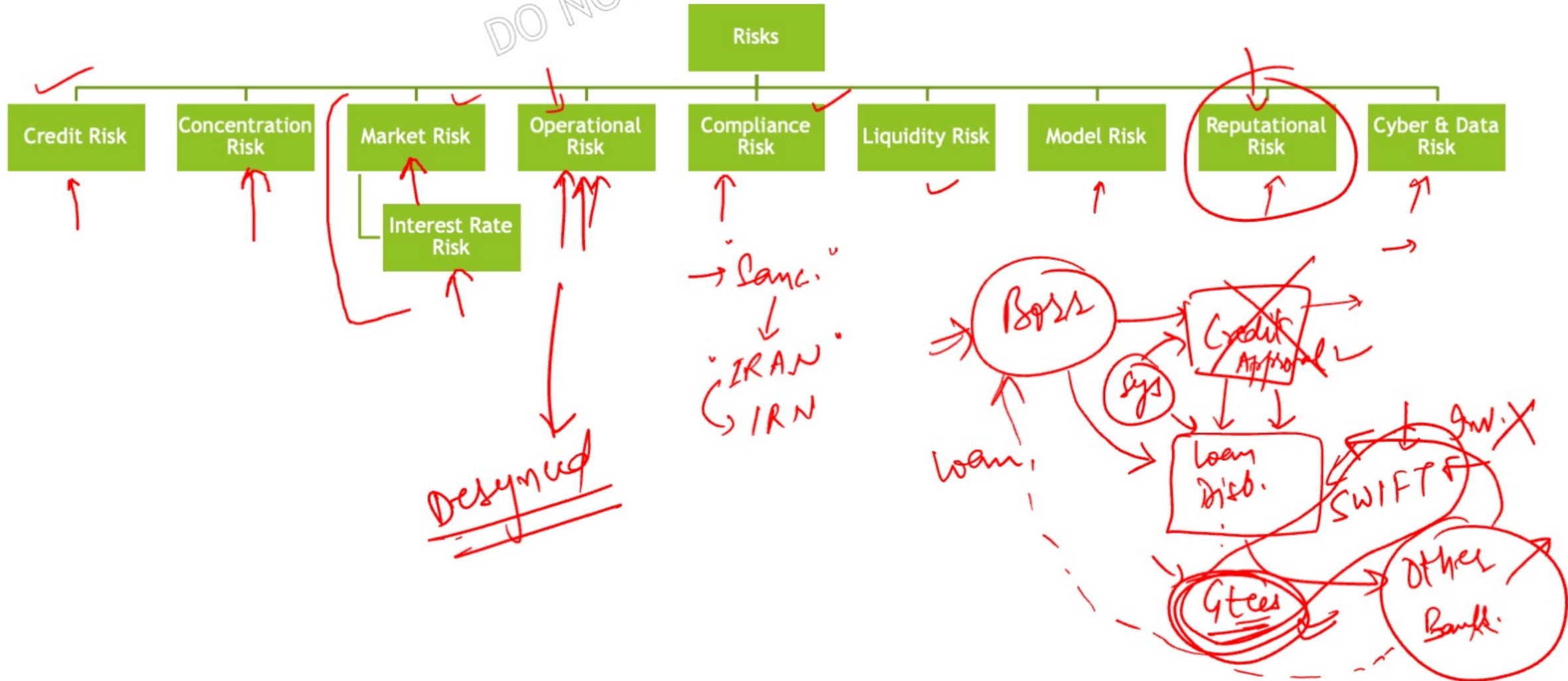
Managing Partner, Light Hill Capital

atul.kedia@iiml.org

SVB

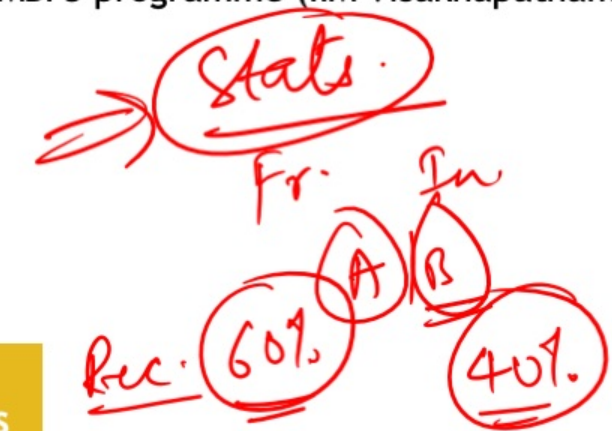
Types of Risks for Banks

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Risk Measures

$PD \times LGD \times EAD = ECL$
 $\text{Rating} \Rightarrow \text{?}$
 $\text{ECL} = \text{F10L}$



Risk Measures



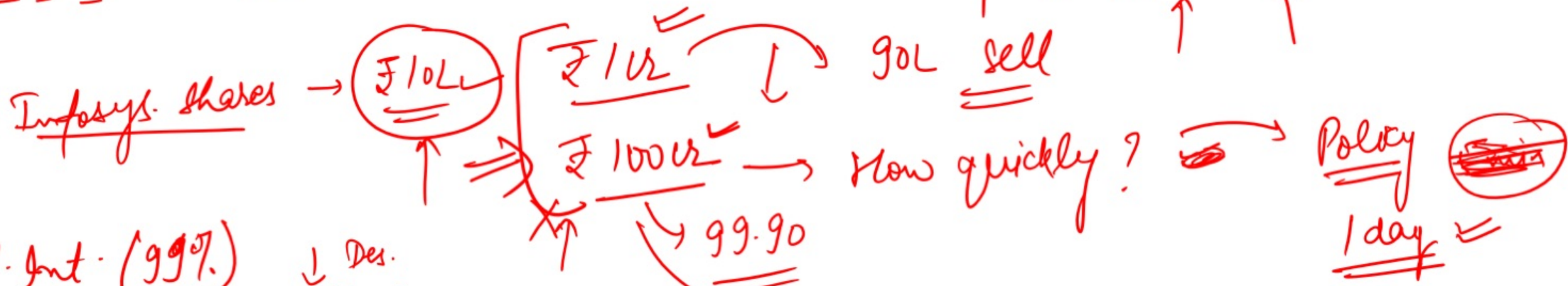
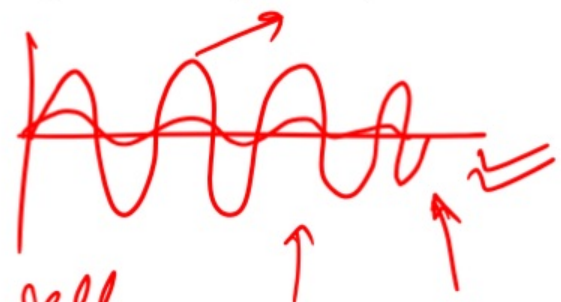
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1) PD (Rating) 4% Y/N 96%
 2) LGD 25%
 Country Industry
 3) EAD = $\frac{PD \times LGD \times EAD}{\%}$
 7% 9% 7% = ₹ = EL (₹ 1,00,00,000)

Co-specific: 7% 93%
 7% 93%

ELL → ₹ 10L

VaR → ₹ 10L Value at Risk



1) Conf. Int. (99%)

2) No. of days (1)

3) Volatility of the sec. SD

- Des.
- 9%
 - 8.99%
 - 8.5%

25 data point (1%)

99% confident
Max loss 7%

Max. loss in 1 day?

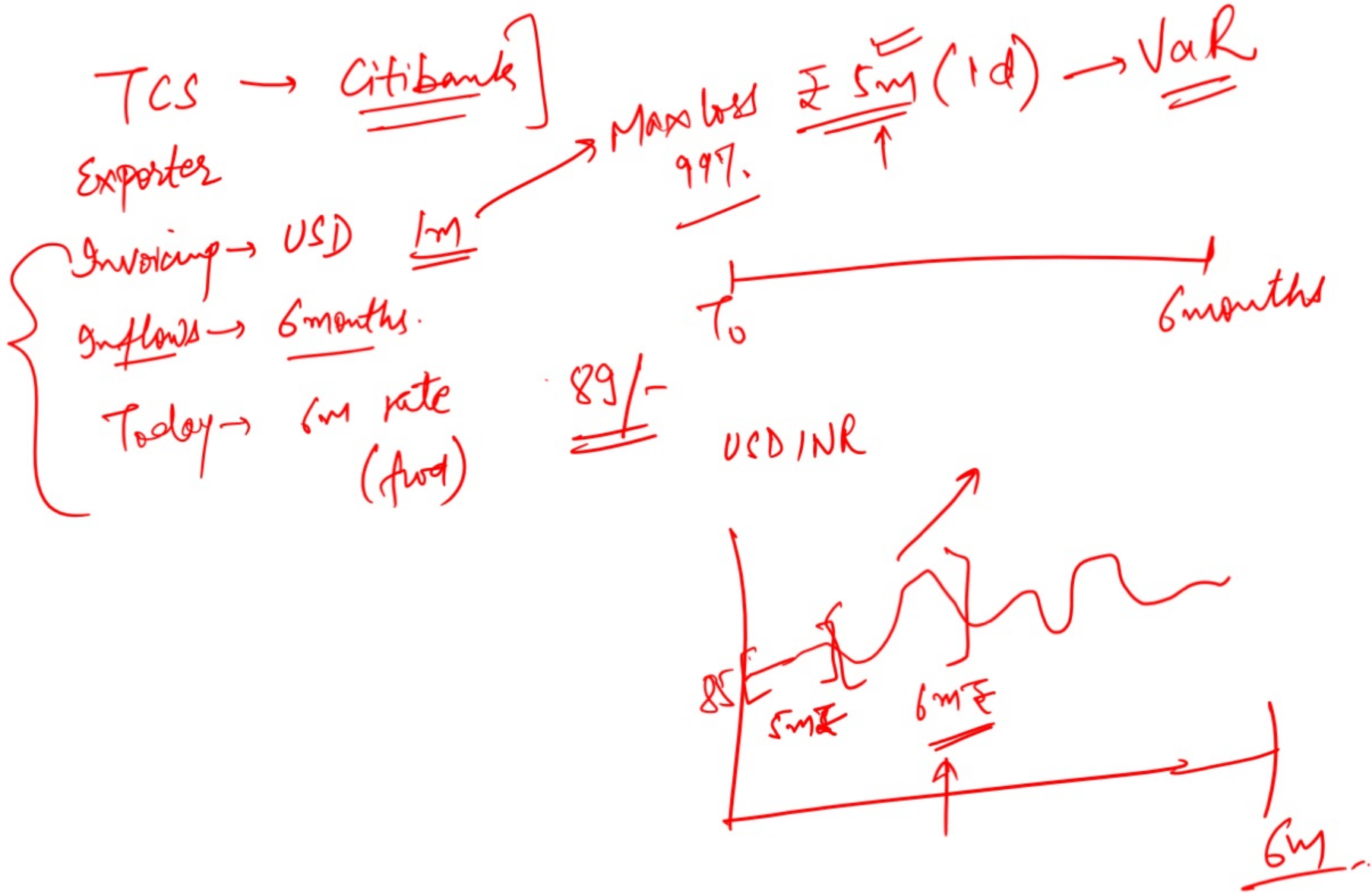
→ Past Experience → 10 years.

2500 data points

VaR

2500 data points.

VaR → 10L Total
% → 7% gnv.



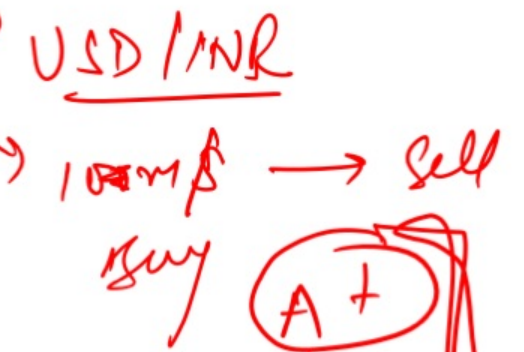
Risk mitigation

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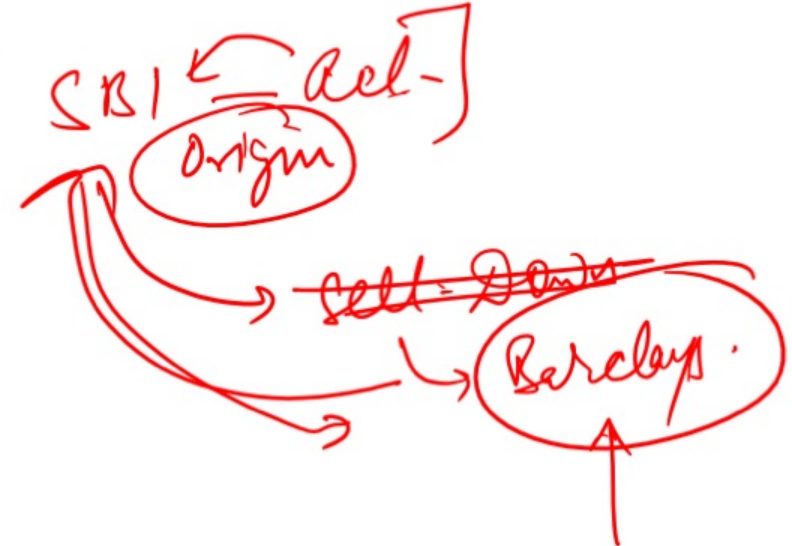
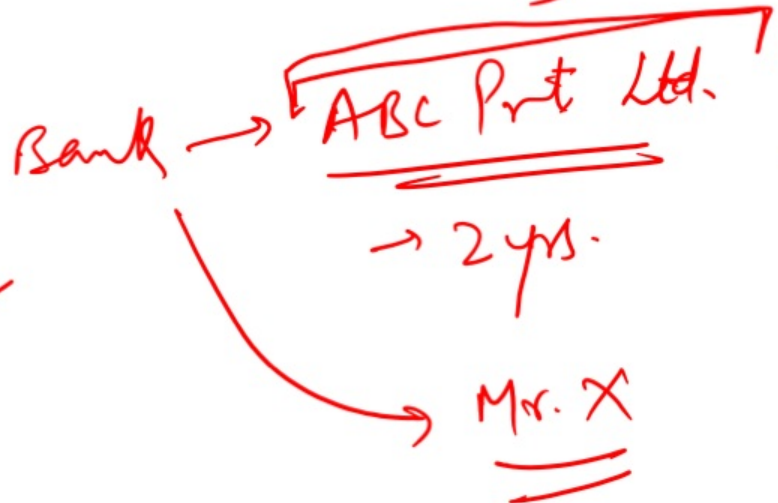


Var

- ▶ Credit risk ratings, PD and LGD, products, collateral, guarantees, covenants
- ▶ Transfer to other participants
- ▶ Risk limits for traders, products, manage concentration risk
- ▶ Policies to manage the risks
- ▶ Regulatory measures - e.g., capital adequacy, liquidity coverage etc.
- ▶ Regular trainings of bank staff
- ▶ Regular internal and external audits



- Ratios
- D/E ✓
 - Sales/eq. ✓
 - Sales/Assets ✓



- A+
- A
- A-
- B+
- B
- B-

7 Co.
 7180 A+
 170-120 A
 165-160 A-
 B+
 B
 B-
 C+
 C
 C-
 D

→ NP Ratio = $\frac{15\%}{25\%} / \frac{8}{9}$
 → D/E → 0.1 / 0.7 / 0.4
 → DSCR $\frac{8}{6}$ / $\frac{4}{4}$
 → CR $\frac{8}{4}$
 → ...
 → [20 Ratios (Fin.)]

Compare
 → ??
 ↑
 Repayments

→ Mgt / Governance = $\frac{10}{8}$ / $\frac{6}{6}$ ← 30 days 180.6

	Wt ₃	C ₁	C ₂	C ₃	...	C ₇
R ₁	10%	6	8	2		
R ₂	5%	8	6	4		
R ₃	2%					
⋮	7%					
⋮	6%					
⋮	100%					
Total		168	132	147		
		200	200			

	R_1	R_2	R_3	...	R_n	Default
C_1	15%	2	10%	...		1
C_2						0
C_3						1
...						0
...						0
C_{1000}						0

C_{1000}
↓

Average → 5%
 63.42% (C-) → 90%
 79.15% (D) → 2%
 2.32% (A+) → 7%

Probability of Default

$C_1 \rightarrow 2.32\%$
 $C_2 \rightarrow 7\%$
 $C_3 \rightarrow 0.5\%$

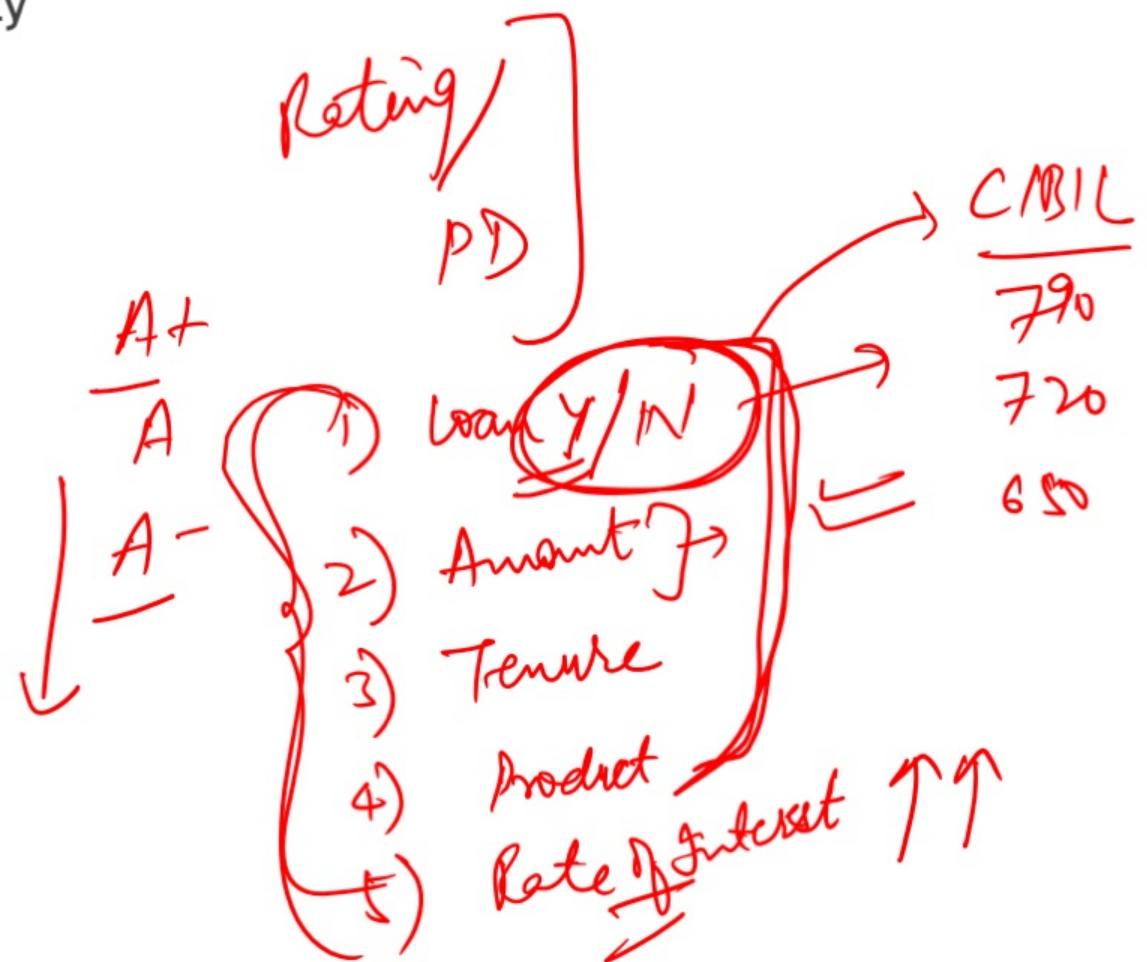
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Suglon.

RWA

Credit Appraisal

- ▶ Credit Analysis / Appraisal is a comprehensive process
- ▶ Detailed risk analysis of cpy's repayment capacity
- ▶ Quantitative analysis: ✓
 - ▶ Multi-year financial statement analysis ✓
 - ▶ Profitability, size, ratios
 - ▶ Computation of financial rating (internal)
- ▶ Qualitative analysis:
 - ▶ Industry, company, related parties
 - ▶ Products and segments, currencies] =
 - ▶ Size, Group, Country adjustments
 - ▶ Credit Risk Mitigants] = PD
 - ▶ Financial rating adjusted with qualitative factors



Credit Monitoring

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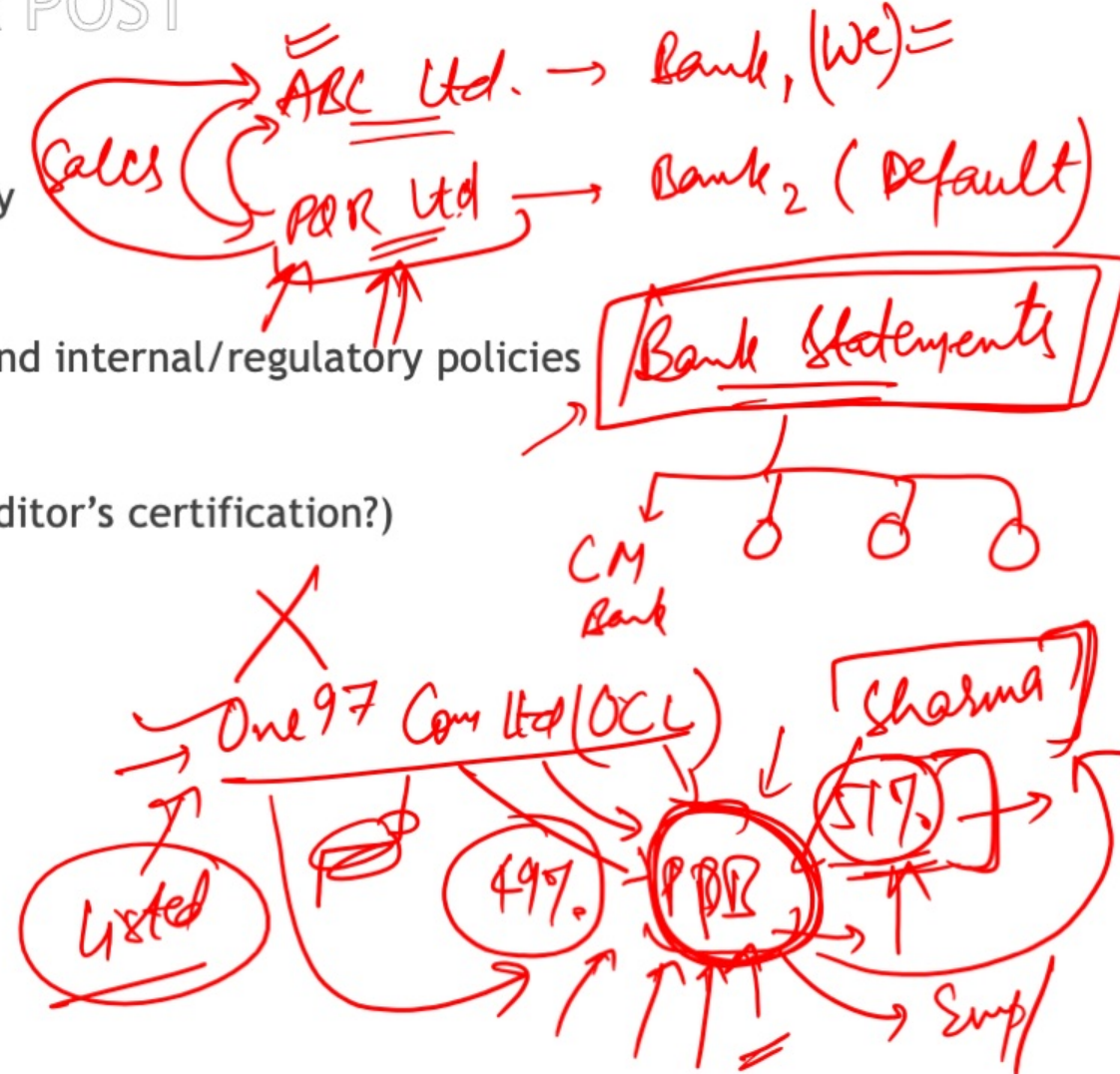
▶ Before credit sanction:

- ▶ Credit appraisal and analysis
- ▶ Sanction and loan documentation in line with loan policy

▶ After credit sanction:

- ▶ Continuous loan monitoring w.r.t. loan documentation and internal/regulatory policies
- ▶ Periodically scrutinize cpy's financial statements
- ▶ Covenants and security analysis (cpy's declaration vs auditor's certification?)
- ▶ SMA reporting by other banks / default monitoring
- ▶ Any material adverse change
- ▶ Identify and rectify problems at an early stage
- ▶ Money has to come back!

▶ Bank's exposure and capital requirements



RBF

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Basel norms

Minimum Capital Ratios - India

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	(% of RWAs)						
Minimum capital ratios	April 1, 2013	March 31, 2014	March 31, 2015	March 31, 2016	March 31, 2017	March 31, 2018	March 31, 2019
Minimum Common Equity Tier 1 (CET1)	4.5	5	5.5	5.5	5.5	5.5	5.5
Capital conservation buffer (CCB)	-	-	-	0.625	1.25	1.875	2.5
Minimum CET1+ CCB	4.5	5	5.5	6.125	6.75	7.375	8
Minimum Tier 1 capital	6	6.5	7	7	7	7	7
Minimum Total Capital*	9	9	9	9	9	9	9
Minimum Total Capital +CCB	9	9	9	9.625	10.25	10.875	11.5
Phase-in of all deductions from CET1 (in %) #	20	40	60	80	100	100	100

* The difference between the minimum total capital requirement of 9% and the Tier 1 requirement can be met with Tier 2 and higher forms of capital;

The same transition approach will apply to deductions from Additional Tier 1 and Tier 2 capital.

Liquidity risk management

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- ▶ The Liquidity Coverage Ratio (LCR) promotes short-term resilience of banks to potential liquidity disruptions by ensuring that they have sufficient high quality liquid assets (HQLAs) to survive an acute stress scenario lasting for 30 days.
- ▶ The Net Stable Funding Ratio (NSFR) promotes resilience over longer-term time horizons by requiring banks to fund their activities with more stable sources of funding on an ongoing basis.

Corporates

► Long Term:

Domestic rating agencies	AAA	AA	A	BBB	BB & below	Unrated
Risk weight (%)	20	30	50	100	150	100

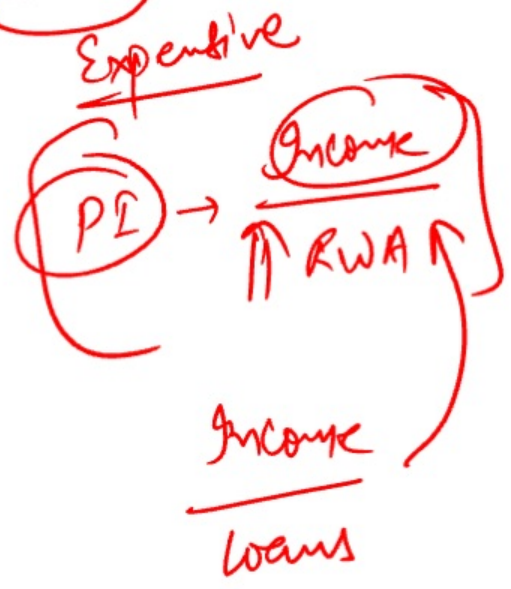
► Short Term:

CARE	CRISIL	India Ratings and Research Private Limited (India Ratings)	ICRA	Brickwork	SMERA Ratings Ltd. (SMERA) ³⁷	(%)
CARE A1+	CRISIL A1+	IND A1+	ICRA A1+	Brickwork A1+	SMERA A1+	20
CARE A1	CRISIL A1	IND A1	ICRA A1	Brickwork A1	SMERA A1	30
CARE A2	CRISIL A2	IND A2	ICRA A2	Brickwork A2	SMERA A2	50
CARE A3	CRISIL A3	IND A3	ICRA A3	Brickwork A3	SMERA A3	100
CARE A4 & D	CRISIL A4 & D	IND A4 & D	ICRA A4 & D	Brickwork A4 & D	SMERA A4 & D	150
Unrated	Unrated	Unrated	Unrated	Unrated	Unrated	100

100%
50%

↑ RWA → 50%

11.5%



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Other Risks

Risks in Banking

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Market risk - Risk of losses in the on-balance sheet and the off-balance sheet positions arising from movements in market prices.

- ◆ Board-approved policies such as Investment Policy, Market Risk Management Policy, Foreign Exchange & Derivatives Policy, and Customer Suitability and Appropriateness Policy help us manage and mitigate our market risk.
- ◆ Limits are prescribed as per the risk appetite statement approved by the Board.

Compliance risk - The risk of legal or regulatory sanctions, as a result of failure to comply with applicable laws, regulations and standards

- ◆ We are committed to ensuring total compliance through our business operations.
- ◆ Compliance management and vigilance are distinct functions within our organisation.
- ◆ Our Chief Compliance Officer (CCO) reports to the Audit Committee of the Board to uphold a zero-tolerance approach towards compliance breaches.
- ◆ Our Head of Vigilance reports directly to the Executive Director.

Source: Extract from RBL Bank's annual report

Risks in Banking

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Liquidity risk - Risk that we are unable to meet our obligations as they become due, for reasons of difficulty in liquidating assets (market liquidity risk) or in obtaining adequate funding (funding liquidity risk).

- ◆ Board-approved policies such as Investment Policy, Market Risk Management Policy, Foreign Exchange & Derivatives Policy, and Customer Suitability and Appropriateness Policy help us manage and mitigate our market risk.
- ◆ Limits are prescribed as per the risk appetite statement approved by the Board.

Reputation risk - Any adverse stakeholder and public perception about our Bank may negatively impact our ability to attract and retain customers and may expose us to litigation and regulatory actions.

- ◆ We manage our reputation risk by maintaining excellent service standards across the board, both physically and digitally. It includes ensuring proactive and speedy response to customer complaints.
- ◆ Our Board-level Customer Service Committee (CSC) governs our complaint handling policy and ensures implementation of TAT guidelines, escalation matrix, and more.

Source: Extract from RBL Bank's annual report

Risks in Banking

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Operational risk - Risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. It includes legal risk but excludes strategic and reputational risk.

- ◆ Our Board-approved Operational Risk Management Policy helps guide our efforts to mitigate operational risks under the oversight of our Operational Risk Management Committee (ORMC).
- ◆ Under it, organisation-wide processes to maintain robust operational excellence have been established.

Risks in Banking

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Cyber and data risk - Risk of cyber-attacks on our digital assets and infrastructure through hacking, phishing, ransomware and other means, resulting in disruption of our services or theft or leak of sensitive internal data or customer information.

- ◆ A robust data governance framework exists at the Bank, which includes our risk management capabilities across Regulatory Capital (RWA), Market Risk, Operational Risk & Fraud Risk.
- ◆ Our Information security management systems conform to the relevant RBI guidelines and ISO/IEC 27001: 2013, with a real-time fraud prevention system to monitor multiple transaction channels.
- ◆ Our Market Intelligence Unit (MIU) monitors large value credit exposures by using data analytics/forensic analysis.
- ◆ Our Early Warning Signal (EWS) platform relies on AI and Internal Rule Engine to Red Flag Accounts that do not meet our quality criteria.
- ◆ We also use the AI-backed 'Heckyl' platform, which sounds out additional alerts beyond the 45+ parameters listed in RBI circular.